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No. 97-1709

In the Supreme Court of the United States

OCTOBER TERM, 1997

KUMHO TIRE COMPANY, LTD., ET AL., PETITIONERS

v.

PATRICK CARMICHAEL, ET AL.

ON WRIT OF CERTIORARI TO THE UNITED STATES COURT OF APPEALS FOR THE ELEVENTH CIRCUIT

BRIEF FOR THE UNITED STATES AS AMICUS CURIAE SUPPORTING PETITIONERS

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QUESTION PRESENTED

Whether this Court's decision in *Daubert* v. *Merrell Dow Pharmaceuticals, Inc.*, 509 U.S. 579 (1993), which clarifies the standards for admission of expert testimony under Rule 702 of the Federal Rules of Evidence, applies to the admission of testimony from an expert witness who bases his opinion on "skill- or experience-based observation."

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INTEREST OF THE UNITED STATES

The United States has a distinctive interest in the interpretation of the Federal Rules of Evidence by virtue of the government's exclusive responsibility for enforcing federal criminal laws and its involvement in a far greater number of civil cases nationwide than "even the most litigious private entity." *United States* v. *Mendoza*, 464 U.S. 154, 159 (1984). The United States therefore has participated in previous cases bearing on the admission of expert testimony under Rule 702 of those Rules. See *Daubert* v. *Merrell Dow Pharmaceuticals, Inc.*, 509 U.S. 579 (1993); *General Electric Co.* v. *Joiner*, 118 S. Ct. 512 (1997). Because the United States litigates in diverse capacities, it has a broad

perspective on the development of nationally applicable standards governing admission of expert testimony.

STATEMENT

Petitioners manufacture and distribute automobile tires. Respondents brought a diversity action against petitioners in the United States District Court for the Southern District of Alabama claiming that petitioners are liable under state product liability and tort law for injuries that respondents suffered as a consequence of an automobile accident. The district court excluded the testimony of respondents' expert that the tire on the automobile was defective and granted summary judgment for petitioners. Pet. App. 1b-20b; see also *id.* at 1c-6c. The court of appeals reversed, ruling that the district court had erred as a matter of law in applying this Court's decision in *Daubert* v. *Merrell Dow Pharmaceuticals, Inc.*, 509 U.S. 579 (1993), to expert testimony that rests on "skill- or experienced-based observation." Pet. App. 1a-10a.

1. Respondent Patrick J. Carmichael purchased a Ford Aerostar XL minivan from a car dealership in the State of Washington. At the time of purchase, the van's odometer registered 88,997 miles. Two months and 7,011 miles later, the right rear tire failed while Carmichael was driving the vehicle in Alabama. Respondents, Carmichael and seven members of his family, suffered severe injuries in the resulting accident. Petitioner Kumho Tire Company, Ltd., had designed and manufactured the tire at issue for petitioner Hercules Tire and Rubber Company, Inc. Pet. App. 2b-4b; Pet. 3 & n.1.

2. Respondents' complaint alleges that the tire that Kumho Tire Company had designed and manufactured was defective and that petitioners are therefore liable

under the Alabama Extended Manufacturers Liability Doctrine, see *Casrell* v. *Altec Industries, Inc.*, 335 So.2d 128 (Ala. 1976), as well as under state common law principles of negligence, wantonness, and breach of warranty. To prove that the tire was defective, respondents sought out expert testimony. See Fed. R. Evid. 702. Respondents initially intended to call George R. Edwards, of George R. Edwards and Associates, as a tire consultant, but Edwards became ill and respondents ultimately relied on an employee of that firm, Dennis Carlson. Pet. App. 7b, 9b n.6. Among his credentials, Carlson had earned a master's degree in mechanical engineering, worked 10 years for Michelin America in the field of tire design, and later worked as a consultant in cases involving tire failure. *Id.* at 7b-8b.

Certain facts respecting the tire, a Hercules Superior XII steel belted radial, were either undisputed or conceded by respondents. First, while the tire's installation date and service history are unknown, the tire had been installed at the time Carmichael purchased the van. Second, the tire had been driven for thousands of miles before the accident and the tread had been reduced by wear from its original depth of 10/32 to 11/32 of an inch to a depth of 0/32 to 3/32 of an inch. Third, the tire had been punctured at some point in its service life and the exterior holes caused by the puncture had not been adequately filled. Pet. App. 3b.

Carlson reached the conclusion, set out in deposition testimony and a subsequent written report, that the tire was defective. In Carlson's opinion, the tire on respondents' minivan failed because of insufficient adhesion between the rubber, steel and nylon components of the tire. Pet. App. 8b. Carlson stated that loss of adhesion can be caused either by abuse, such as when the tire is underinflated or overloaded and thereby

suffers "overdeflection," or by a manufacturing or design defect. *Id.* at 8b-9b. Carlson examines four indicators for signs of overdeflection:

> (1) greater tread wear on the shoulder than in the center of the tire; (2) sidewall deterioration or discoloration; (3) abnormal bead grooving on the tire; and (4) rim flange impressions.

Pet. App. 9b. Carlson explained that, if he fails to find sufficient evidence of two of the four indicators in a tire, he rules out overdeflection as a cause of tire failure and (unless there is evidence of some other form of abuse) concludes that the loss of adhesion is the result of a manufacturing or design defect. *Id.* at 9b.

Carlson examined photographs that Edwards had taken and made a visual inspection of the tire on the morning of his deposition. Pet. App. 9b-10b & n.6. He concluded that, while the tire showed signs of abuse under the four factors, there was insufficient evidence to establish overdeflection. *Id.* at 10b. He concluded, on that basis, that the tire was defective. In effect, "Carlson's expert opinion that the tire failure was caused by a manufacturing or design defect is founded on his determination that there is a paucity of evidence of overdeflection or other abuse, rather than [on] his ability to pinpoint any affirmative evidence of a defect." *Id.* at 10b.

3. The district court granted petitioners' motion to exclude Carlson's testimony and, finding that respondents had no other evidence of defect, granted petitioners' motion for summary judgment. Pet. App. 1b-22b. The district court assumed for purposes of its analysis that Carlson is qualified as an expert on the causes of tire failure, but it also concluded that the analytical framework set out in *Daubert* v. *Merrell Dow*

Pharmaceuticals, Inc., 509 U.S. 579 (1993), applies to this case. Pet. App. at 8b, 11b. Noting *Daubert*'s admonition that district courts should serve as "gatekeepers" to evaluate proposed expert testimony, the district court assessed the reliability of Carlson's proposed testimony by looking at the considerations identified by this Court in *Daubert*, including: (1) whether the technique or theory may be tested or refuted; (2) whether the technique or theory has been a subject of peer review or publication; (3) the known or potential rate of error of a technique; and (4) the degree of acceptance of a theory or technique within the relevant scientific community. *Id.* at 11b-16b. The court concluded that Carlson's testimony, evaluated in light of those factors, does not have sufficient evidentiary reliability to be admissible at trial. *Ibid.* The court rejected respondents' contention that *Daubert* is inapplicable because Carlson's testimony rests on a "technical," rather than a "scientific" analysis. *Id.* at 16b-18b. Because Carlson's testimony is the only basis for respondents' claim of defect in the tire, the court granted petitioners' motion for summary judgment. *Id.* at 19b-22b.

4. On reconsideration, the district court reaffirmed its conclusion. Pet. App. 1c-7c. In response to respondents' criticism that the court had simply disagreed with Carlson's results, the court stated that it "no way passed judgment on the validity of Carlson's conclusions," but "found the methodological foundation of Carlson's testimony to be lacking." *Id.* at 3c. The court also rejected respondents' contention that it had "convert[ed] the flexible *Daubert* inquiry into a rigid one," explaining that while "the list of criteria propounded in *Daubert* was intended neither to be exhaustive nor to apply in every case," it had "found

the *Daubert* factors appropriate, analyzed them, and discerned no competing criteria sufficiently strong to outweigh them." *Id.* at 4c. Finally, the court rejected respondents' contention that Carlson's testimony met the elements of "testability," peer review and general acceptance, noting that respondents had failed to demonstrate that "the methodology and principles adopted by Carlson are widely accepted in the relevant community." *Id.* at 5c-6c.

5. The court of appeals reversed. Pet. App. 1a-10a. The court of appeals, like the district court, assumed that Carlson was an expert qualified to testify about the causes of tire failure. *Id.* at 3a n.2. The court of appeals concluded, however, that the factors that *Daubert* had identified for evaluating expert testimony apply only to testimony based on the "application of scientific principles" and do not apply to Carlson's testimony, which the court characterized as based on "skill- or experience-based observation." *Id.* at 6a. See *id.* at 5a-8a. The court of appeals ruled that the district court had erred as a matter of law by applying the *Daubert* factors and remanded the case for a further hearing by the district court "to determine if Carlson's testimony is sufficiently reliable and relevant to assist a jury." *Id.* at 9a.

SUMMARY OF ARGUMENT

This Court's decision in *Daubert* v. *Merrell Dow Pharmaceuticals, Inc.*, 509 U.S. 579 (1993), establishes a general framework and identifies illustrative factors for resolving whether expert testimony is admissible under Rule 702 of the Federal Rules of Evidence. The court of appeals concluded that *Daubert* does not apply to the expert testimony at issue here and that the district court therefore erred as a matter of law in

applying the factors identified in *Daubert* to determine whether Carlson's expert testimony is admissible. We submit, to the contrary, that the district court did not abuse its discretion in considering those factors in the course of determining the reliability of Carlson's methodology.

A. This Court's decision in *Daubert* holds, as a general principle, that a trial judge must ensure "that an expert's testimony both rests on a reliable foundation and is relevant to the task at hand." 509 U.S. at 597. In addition, the Court's decision provides specific guidance with respect to the trial judge's screening of "expert scientific testimony." *Id.* at 592-595. The Court recognized that "many factors" may bear on the inquiry, but it nevertheless highlighted four factors, relating to verification, publication, normalization, and acceptance within the relevant discipline, that a court may consider in evaluating the reliability of expert scientific testimony. The Court emphasized, however, that the inquiry envisioned by Rule 702 is "a flexible one." The Court made clear that the specific factors that it identified were intended as guides that may apply in a range of circumstances.

B. The court of appeals erroneously concluded that this Court's decision in *Daubert* applies only to expert testimony that is based on "the application of scientific principles" and not to expert testimony based on "skill- or experience-based observation." Pet. App. 6a. *Daubert*'s general framework for analyzing expert testimony, which requires the trial judge to ensure that expert opinion is reliable and relevant, applies to all expert testimony, and not simply to "scientific" testimony. The court of appeals also erred in drawing a categorical line, for purposes of applying the factors identified in *Daubert*, between testimony that relies on

"scientific principles" and testimony that relies on "skill- or experience-based observations." Science can utilize both deductive and inductive methodologies, and each is subject to scientific methods of validation. Even if "scientific" evidence could be categorically distinguished from "non-scientific" evidence on the basis the court of appeals suggests, the court's blanket rule prohibiting application of the factors identified in *Daubert* to testimony based on "skill- or experience-based observation" would unduly limit the discretion of trial judges, who should have considerable latitude to determine what factors are germane in assessing the reliability and relevance of particular instances of expert testimony.

C. The district court did not abuse its discretion in applying the factors that this Court identified in *Daubert* to the expert testimony at issue in this case. The court was entitled to consider those factors here because they provide a rational basis for assessing whether the expert's methodology is reliable in drawing from his observations inferences as to the cause of the tire's failure. The district court appropriately considered those factors, as well as other pertinent factors, and reasonably concluded that the expert's methodology "is simply too unreliable, too speculative, and too attenuated to the scientific knowledge on which it is based to be of material assistance to the trier of fact." Pet. App. 18b. The district court's decision rests on a reasonable exercise of discretion, and the court of appeals consequently erred in overturning the district court's judgment.

ARGUMENT

THE COURT OF APPEALS ERRED IN SETTING ASIDE THE DISTRICT COURT'S DETERMINATION THAT THE TESTIMONY OF RESPONDENTS' EXPERT IS NOT ADMISSIBLE UNDER RULE 702 OF THE FEDERAL RULES OF EVIDENCE

Petitioners have characterized the issue here as whether a trial court may consider the factors set out in *Daubert* v. *Merrell Dow Pharmaceuticals, Inc.*, 509 U.S. 579 (1993), in a Rule 702 analysis of the admissibility of "an engineering expert's testimony." Pet. i. The court of appeals' decision is mistaken, however, for reasons apart from the particular professional identity of the expert. The court of appeals drew a categorical distinction, for purposes of applying *Daubert vel non*, between expert testimony based on "application of scientific principles" and expert testimony based on "skill- or experience-based observations." Pet. App. 6a. The court erred in drawing that distinction. A trial court has substantial discretion to employ the factors set out in *Daubert*, as well as other pertinent factors, so long as the factors rationally bear on the trial court's determination, under Rule 702, of whether the expert's testimony is reliable and relevant. The trial court did not abuse its discretion in employing the *Daubert* factors or in reaching its ultimate conclusion to exclude the expert's testimony in this case.

A. This Court's Decision in *Daubert* Provides A General Framework And Identifies Potentially Pertinent Factors For Determining Whether Expert Testimony Is Admissible Under Rule 702

Article VII of the Federal Rules of Evidence sets out a series of Rules addressing the use of opinions and expert testimony at trial. Rule 701 states the tradi-

tional limitation that a person who is not an "expert" may testify in the form of opinions or inferences only to the extent that those opinions or inferences are rationally based on the perception of the witness and are helpful to a clear understanding of the witness's testimony or the determination of a fact in issue. See Fed. R. Evid. 701. Rule 702 creates much wider latitude for an expert to testify in the form of opinion, stating:

> If scientific, technical, or other specialized knowledge will assist the trier of fact to understand the evidence or to determine a fact in issue, a witness qualified as an expert by knowledge, skill, experience, training or education, may testify thereto in the form of an opinion or otherwise.

Fed. R. Evid. 702. Rule 703 further provides that the facts or data upon which the expert relies may be those perceived by or made known to the expert at or before the hearing and, if they are of a type reasonably relied upon by experts in the particular field, those facts or data need not be admissible in evidence. Fed. R. Evid. 703. See also Fed. R. Evid. 704 (governing opinions on ultimate issues); Fed. R. Evid. 705 (governing disclosure of underlying facts or data); Fed. R. Evid. 706 (governing court-appointed experts).

This Court's decision in *Daubert* lays out a general framework for applying Rule 702, which "clearly contemplates some degree of regulation of the subjects and theories about which an expert may testify." *Daubert*, 509 U.S. at 589. The Court concluded that Rule 702 requires the trial court to screen expert testimony to protect the jury from expert opinions that do not satisfy the threshold requirements of "evidentiary reliability" and "relevance" to the issues before the

trier of fact. *Id.* at 589-591. The Court specifically held that trial judges must ensure "that an expert's testimony both rests on a reliable foundation and is relevant to the task at hand." *Id.* at 597. Accord *General Electric Co.* v. *Joiner*, 118 S. Ct. 512, 517 (1997) ("the Federal Rules of Evidence * * * leave in place the 'gatekeeper' role of the trial judge in screening such evidence").

The Court's decision in *Daubert* also provides specific guidance with respect to the trial court's screening of "expert scientific testimony." 509 U.S. at 592-595. The Court stated that the trial court must determine at the outset, pursuant to Federal Rule of Evidence 104(a) (which describes the trial judge's role in deciding preliminary evidentiary questions), "whether the expert is proposing to testify to (1) scientific knowledge that (2) will assist the trier of fact to understand or determine a fact in issue." *Daubert*, 509 U.S. at 592. "This entails a preliminary assessment of whether the reasoning or methodology underlying the testimony is scientifically valid and of whether that reasoning or methodology properly can be applied to the facts in issue." *Id.* at 592-593. The Court stated that "[m]any factors will bear on the inquiry, and we do not presume to set out a definitive checklist or test." *Id.* at 593. Nevertheless, the Court made some "general observations" to provide guidance. *Ibid.*

The Court described four criteria or factors that are likely to be of assistance to a trial court in evaluating whether the "theory or technique" at issue is "scientific knowledge that will assist the trier of fact," *Daubert*, 509 U.S. at 593. Those factors are whether the theory or technique (1) "can be (and has been) tested"; (2) "has been subjected to peer review and publication"; (3) is subject to professional "standards" and has "a known or

potential rate of error"; and (4) has received "acceptance" in the scientific community. *Id.* at 593-594. The Court emphasized, however, that the "inquiry envisioned by Rule 702" is "a flexible one." *Id.* at 594. "Its overarching subject is the scientific validity—and thus the evidentiary relevance and reliability—of the principles that underlie a proposed submission. The focus, of course, must be solely on principles and methodology, not on the conclusions that they generate." *Id.* at 594-595. The Court's decision in *Daubert* accordingly makes clear that the specific factors that the Court identified are guideposts that may apply in a range of circumstances, but do not encompass every situation in which an expert may testify.

B. The Court of Appeals Erred In Holding That This Court's Decision In *Daubert* Does Not Apply to Expert Testimony That Is Based On "Skill- or Experience-Based Observation"

The court of appeals concluded that this Court's decision in *Daubert* resolved only the question of admission of expert testimony in the "scientific context." Pet. App. 5a. Based on that understanding, the court of appeals drew a categorical distinction between "an expert who relies on the application of scientific principles" and one who relies "on skill- or experience-based observation," as the basis for an expert opinion. *Id.* at 6a. Applying that distinction to this case, the court determined that Carlson's testimony is "non-scientific" because "Carlson rests his opinion on his experience in analyzing failed tires." *Id.* at 8a. The court accordingly ruled that "Carlson's testimony falls outside the scope of *Daubert* and that the district court erred as a matter of law by applying *Daubert* to this case." *Ibid.*

As an initial matter, the court of appeals' understanding that *Daubert* applies only to "scientific" evidence is flawed. This Court stated in the course of its analysis that "[o]ur discussion is limited to the scientific context because that is the nature of the expertise offered here." *Daubert*, 509 U.S. at 590 n.8. Although the Court limited its discussion in that way, the Court articulated certain basic principles for applying Rule 702 to all forms of expert testimony. The Court ruled that a trial judge must ensure that "an expert's testimony both rests on a reliable foundation and is relevant to the task at hand." *Id.* at 597. The rationale for the Court's ruling—that Rule 702 "clearly contemplates some degree of regulation of the subjects and theories about which an expert may testify"—logically applies to all manner of expert testimony, regardless of whether the testimony is based on "scientific, technical, or other specialized knowledge." Fed. R. Evid. 702.[1]

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[1] The Advisory Committee Note accompanying Rule 702 supports that understanding. As the Advisory Committee Note explains:

> The rule is broadly phrased. The fields of knowledge which may be drawn upon are not limited merely to the "scientific" and "technical" but extend to all "specialized" knowledge. Similarly, the expert is viewed, not in a narrow sense, but as a person qualified by "knowledge, skill, experience, training or education." Thus, within the scope of the rule are not only experts in the strictest sense of the word, e.g., physicians, physicists, and architects, but also the large group sometimes called "skilled" witnesses, such as bankers or landowners testifying to land values.

Nothing in Rule 702 suggests that the need for "some degree of regulation of the subjects and theories about which an expert may testify" applies to some of those experts, but not others.

Daubert recognizes that Rule 702 allows the admission of expert testimony—whether based on "scientific, technical, or other specialized knowledge"—if it "will assist the trier of fact" (Fed. R. Evid. 702). See *Daubert*, 509 U.S. at 589, 591. *Daubert* also recognizes that Rule 702 prohibits the admission of expert testimony, whatever its basis, if the testimony does not satisfy the basic thresholds of reliability and relevance that are essential for the testimony to be useful in the trial setting. See *id.* at 590-592. *Daubert* provides no reason for subjecting expert opinions to different formulations of that fundamental threshold test depending on whether the opinions are based on "scientific," "technical," or "other specialized" knowledge. See *id.* at 592 ("relaxation of the usual requirement of firsthand knowledge * * * is premised on an assumption that the expert's opinion will have a reliable basis in the knowledge and experience of his discipline"). The court of appeals implicitly recognized that point (without attribution to *Daubert*) by acknowledging that "it is the district court's duty to determine if Carlson's testimony is sufficiently reliable and relevant to assist a jury." Pet. App. 9a (citing *United States* v. *14.38 Acres of Land*, 80 F.3d 1074, 1078 (5th Cir. 1996)).[2]

[2] Distinguishing between categories of experts for purposes of Rule 702 would pose serious practical problems. As this Court observed in *Daubert*, the law "must resolve disputes finally and quickly." 509 U.S. at 597. The evaluation of expert testimony in the course of resolving legal disputes would be difficult to manage if different standards governed the admissibility of different categories of experts. When making "swift battlefield decisions on tangled evidentiary matters," *United States* v. *Sepulveda*, 15 F.3d 1161, 1183-1184 (1st Cir. 1993), cert. denied, 512 U.S. 1223 (1994), both district courts and trial counsel benefit from reliance on a single conceptual framework for assessing the admissibility of the proffered testimony. *See* American College of Trial Lawyers, Standards and Procedures For Determining The Admissibility of Expert Evidence After *Daubert*, 157 F.R.D. 571, 577-578 (1994). There is, accordingly, a strong need for one general framework when evaluating the admissibility of expert testimony and evidence under Rule 702.

The court of appeals' disagreement with the district court therefore rests, not so much on whether to apply "*Daubert*'s reliability framework," Pet. App. 4a, but on whether the district court was entitled to consider the four particular factors that the Court identified in *Daubert* as indicia of evidentiary reliability. See p. 12, *supra*. But even in that limited sense, the court of appeals' decision is unsound. The court of appeals is correct that this Court discussed those factors—which may be conveniently described as verification, publication, normalization, and acceptance—in the context of "a proffer of expert scientific testimony." *Daubert*, 509 U.S. at 592. The court of appeals is nevertheless mistaken in ruling that there is a categorical distinction, for purposes of applying those factors, between expert testimony based on "application of scientific principles" and expert testimony based on "skill- or experience-based observation." Pet. App. 6a.

As this Court recognized in *Daubert*, Rule 702's reference to "scientific" knowledge "implies a grounding in the methods and procedures of science." 509 U.S. at 590. The term "science" is commonly understood to describe "a *process* for proposing and refining theoretical explanations about the world that are subject to further testing and refinement." *Ibid.*, quoting Brief for American Association for the Advancement of Science et al. as Amicus Curiae 7-8 (emphasis in original). The court of appeals is assuredly correct that

scientific opinion may be based on deductive reasoning from known "scientific principles." See IV *Oxford English Dictionary* 358 (2d ed. 1989) (defining "deduction" as "[t]he process of deducing or drawing a conclusion from a principle already known or assumed."). But scientific opinion may also be based on inductive reasoning from observation of the physical world. See VII *Oxford English Dictionary* 890 (2d ed. 1989) (defining "induction" as the "[t]he process of inferring a general law or principle from the observation of particular instances.").[3]

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[3] As Albert Einstein observed, "[t]he whole of science is nothing more than a refinement of everyday thinking." Albert Einstein, *Ideas and Opinions* 290 (1982). He described the relationship of induction and deduction as follows:

> The theorist's method involves his using as his foundation general postulates or "principles" from which he can deduce conclusions. His work thus falls into two parts. He must first discover his principles and then draw the conclusions which follow from them. * * * The scientist has to worm the[] general principles out of nature by perceiving in comprehensive complexes of empirical facts certain general features which permit of precise formulation.
>
> Once this formulation is successfully accomplished, inference follows on inference, often revealing unforeseen relations which extend far beyond the province of the reality from which the principles were drawn. But as long as no principles are found on which to base the deduction, the individual empirical fact is of no use to the theorist; indeed he cannot even do anything with isolated general laws abstracted from experience. He will remain helpless in the face of separate results of empirical research, until principles which he can make the basis of deductive reasoning have revealed themselves to him.

Id. at 221. Sir Isaac Newton expressed a similar view, stating, when defending his theory of refraction, "[f]or the best and safest method of philosophizing seems to be, first to inquire diligently into the properties of things, and establishing those properties by experiments and then to proceed more slowly to hypotheses for the explanation of them." Isaac Newton, *Papers and Letters on Natural Philosophy* 106 (I. Bernard Cohen ed., 1958) (translated from the Latin). The scientist's methodology in making observations and formulating general principles, no less than his methodology for extending those principles to other situations, is subject to scientific validation.

The court of appeals is accordingly mistaken in suggesting that *Daubert*'s reference to "scientific" testimony necessarily limits *Daubert*'s reach to testimony based on "application of scientific principles," but not to any testimony based on "skill- or experience-based observation." Nothing in *Daubert* supports the creation of such a dichotomy, for purposes of applying Rule 702, between scientific knowledge based on deductive reasoning and scientific knowledge based on inductive reasoning. Either methodology can produce expert scientific testimony. In either case, the reliability of the testimony can be evaluated by reference to its scientific validity. See *Daubert*, 509 U.S. at 590 & n.9. This is not to say, of course, that every instance of deduction or induction is an exercise in science. The point is simply that the court of appeals erred in suggesting that testimony based on "skill- or experience-based observation" is inherently "non-scientific." Pet. App. 6a.

Even if there were a theoretical basis, derived from the definition of "science," for holding that expert opinions based on "skill- or experience-based observation" are inherently "non-scientific," Pet. App. 6a, it would make no sense to hamstring trial judges with definitive rules respecting what factors they may consider for "scientific" as compared to "non-scientific" expert testimony. As this Court recognized in *Daubert*,

the fundamental inquiry for the trial judge under Rule 702 is whether the expert's testimony "rests on a reliable foundation and is relevant to the task at hand." 509 U.S. at 597. The Court noted that "[m]any factors will bear on the inquiry," and it did "not presume to set out a definitive checklist or test." *Id.* at 593. The Court's "general observations" respecting the four factors identified in *Daubert* simply provide illustrative examples of pertinent considerations and are not meant to displace the trial judge's traditional discretion to determine what factors are germane in a particular case. See *id.* at 593-594.[4]

Given the complexity of modern society and the specialization of roles within a culture, litigants are likely to call upon a wide spectrum of experts possessing "knowledge" that may "assist the trier of fact to understand the evidence or to determine a fact in

[4] For example, other relevant inquiries, depending on the circumstances, may include whether the expert's opinion was developed solely for purposes of litigation as a "hired gun," *Watkins* v. *Telsmith, Inc.*, 121 F.3d 984, 991 (5th Cir. 1997); *Daubert* v. *Merrell Dow Pharmaceuticals, Inc.*, 43 F.3d 1311, 1317 (9th Cir. 1995); whether the expert, purporting to apply an accepted methodology, presents a conclusion shared by no other expert in the field, *Lust* v. *Merrell Dow Pharmaceuticals, Inc.*, 89 F.3d 594, 598 (9th Cir. 1996); whether an analytical gap exists between the expert's premises and the expert's conclusions, *General Electric*, 118 S. Ct. at 519; *Turpin* v. *Merrell Dow Pharmaceuticals, Inc.*, 959 F.2d 1349, 1360 (6th Cir.), cert. denied, 506 U.S. 826 (1992); and whether the discipline or field at issue generally lacks reliability as a matter of law, see *Bradley* v. *Brown*, 42 F.3d. 434, 438 (7th Cir. 1994); *Viterbo* v. *Dow Chemical*, 826 F.2d 420, 422-424 (5th Cir. 1987); *Frank* v. *New York*, 972 F. Supp. 130, 136-137 (N.D.N.Y. 1997).

issue." Fed. R. Evid. 702.[5] In all such cases, the trial judge must find that the testimony is properly grounded, well-reasoned, and not speculative. The factors identified in *Daubert* may or may not be pertinent in assessing reliability, depending on the nature of the issue, the expert's particular expertise, and the subject of his testmony. It is simply not feasible to categorize definitively what factors the court may consider for each species of expert. As the Court emphasized in *Daubert*, Rule 702 envisions a "flexible" inquiry, *id.* at 594, and trial courts should therefore have substantial latitude in determining what criteria or factors are germane in assessing the evidentiary reliability of particular expert testimony.[6]

[5] The case law offers numerous and varied examples of such expertise. See, *e.g.*, *United States* v. *Griffith*, 118 F.3d 318, 322-323 (5th Cir. 1997) (drug terms); *United States* v. *Jones*, 107 F.3d 1147, 1160-1161 (6th Cir. 1997) (handwriting analysis); *United States* v. *Cordoba*, 104 F.3d 225, 229-230 (9th Cir. 1997) (criminal *modus operandi*); *United States* v. *14.38 Acres of Land*, 80 F.3d 1074, 1077-1079 (5th Cir. 1996) (land valuation); *United States* v. *Kunzman*, 54 F.3d 1522, 1530 (10th Cir. 1995) (check marking identification); *United States* v. *Johnson*, 28 F.3d 1487, 1496-1498 (8th Cir. 1994) (drug trafficking operations); *United States* v. *Sylvester*, 848 F.2d 520, 522 (5th Cir. 1988) (agricultural practices); *Eckert* v. *Aliquippa & S. R.R.*, 828 F.2d 183, 185n.5 (3d Cir. 1987) (railroad procedures); *United States* v. *Riccobene*, 709 F.2d 214, 230 (3d Cir.) (organized crime jargon), cert. denied, 464 U.S. 849 (1983); *Chrysler Credit Corp.* v. *Whitney National Bank*, 824 F. Supp. 587, 601 (E.D. La. 1993) (commercial lending practices); *Arrow, Edelstein & Gross, P.C.* v. *Rosco Prod., Inc.*, 581 F. Supp. 520, 523-524 (S.D.N.Y. 1984) (attorneys' fee valuation).

[6] In the exercise of its gatekeeping duties, the district court may, of course, admit testimony from experts who are not scientists and whose specialized knowledge is not amenable to scientific measures of reliability. Genuine expertise may be based on practical experience in a particular field, and the "measure of

As this Court made clear in *General Electric* v. *Joiner*, the trial court's determinations under Rule 702 should be set aside only upon a showing that the court abused its discretion. 118 S. Ct. at 517-519. That standard applies, as well, to the trial court's determination of what factors appropriately bear on the inquiry in the particular circumstances. As we explained in greater detail in our amicus brief in *General Electric* (see U.S. Amicus Br. 17-23), appellate review under the abuse of discretion standard is not "an empty exercise." *Koon* v. *United States*, 518 U.S. 81, 98 (1996). It encompasses both errors of law and errors of fact. See *Cooter & Gell* v. *Hartmarx Corp.*, 496 U.S. 384, 399-405 (1990). A district court may abuse its discretion by failing to exercise discretion, by applying inappropriate analytical criteria, or by exceeding the range of permissible choice. See generally *Koon*, 518 U.S. at 98- 100; *Cooter & Gell*, 496 U.S. at 399-405; *Pierce* v. *Underwood*, 487 U.S. 552, 570 (1988); *United States* v. *Dockery*, 955 F.2d 50, 54 (D.C. Cir. 1992). Depending on the expert testimony involved, a district court's decision to apply the factors identified in *Daubert*, or not to apply those factors, could result in an abuse of discretion. The crucial question in each case is whether the district court has properly assessed the reliability of

intellectual rigor will vary by the field of expertise." *Tyus* v. *Urban Search Management*, 102 F.3d 256, 263 (7th Cir. 1996). If the testimony in such cases is both reliable and relevant, it is admissible. See generally E. Imwinkelried, *The Next Step After Daubert: Developing A Similarly Epistemological Approach To Ensuring The Reliability Of Nonscientific Expert Testimony*, 15 Cardozo L. Rev. 2271 (1994).

the expert's testimony in light of the facts at issue and the expertise involved.[7]

The court of appeals' unqualified conclusion that the district court erred "as a matter of law" by applying the factors identified in *Daubert* to expert testimony based on "skill- or experience-based observation" (Pet. App. 8a, 10a) is especially problematic when viewed in light of the need for a trial court to exercise sound discretion based on the reliability and relevance of particular expert testimony in a specific case. The court of appeals has effectively created a categorical rule that a district court can never apply the factors specified in *Daubert* to expert testimony that rests on what the court of appeals calls "skill- or experience-based observation." There is no warrant for such a rule. In many cases, some or all of the factors identified in *Daubert*—verification, publication, normalization, and acceptance in the relevant field—may be germane, depending on the circumstances, in assessing the reliability of testimony based on "skill- or experience-based observations." The court of appeals is wrong in suggesting that the factors identified in *Daubert* can never prove useful in resolving the reliability of such testimony.[8]

[7] It bears emphasis, moreover, that the trial court must be mindful that its role is to assess the reliability, and not the credibility, of the expert's testimony. *Daubert*, 509 U.S. at 595.

[8] For example, the court of appeals supported its result by offering the hypothetical case of "an experienced mechanic" who "may recognize patterns of normal and abnormal wear on a [spark plug] even though he has no knowledge of the general principles of physics or chemistry that might explain why or how a spark plug works." Pet. App. 7a n.6. The mere fact that the mechanic purports to be "experienced" does not, however, immunize the mechanic's testimony from the threshold inquiry under Rule 702 of

C. The District Court Did Not Abuse Its Discretion In Applying the Factors Identified In *Daubert* To the Expert Testimony In This Case Or In Reaching Its Ultimate Conclusion That The Testimony Should Be Excluded

Under this Court's decision in *General Electric*, it would have been proper for the court of appeals to reverse the district court's decision to exclude Carlson's testimony if the district court had abused its discretion in concluding that the testimony lacks sufficient reliability to assist the trier of fact. 118 S. Ct. at 515, 519. The district court, however, did not abuse its discretion. The district court understood that its duty as "gatekeeper" required it to evaluate whether the knowledge and experience on which Carlson relied is sufficiently trustworthy and whether Carlson has reliably applied that knowledge and experience to the

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whether it is sufficiently reliable and relevant to be put before a jury. See *General Electric*, 118 S. Ct. at 519 ("nothing in either *Daubert* or the Federal Rules of Evidence requires a district court to admit opinion evidence which is connected to existing data only by the *ipse dixit* of the expert"). In resolving a challenge to the mechanic's testimony under Rule 702, a trial court should not be precluded from considering the factors identified in *Daubert* if they are reasonable measures of the reliability of the testimony. For example, a district court could consider whether the inferences drawn by the auto mechanic on the basis of "skill-or experience-based observations" have been reached by means that have been validated through industry tests or studies, find support in auto repair publications, or are widely accepted in the automotive repair industry. See, *e.g.*, Mike Forsythe & John H. Haynes, *The Haynes Chrysler Engine Overhaul Manual* 3-3 to 3-5 (1994) (illustrating and explaining patterns of sparkplug wear); *Chilton's Easy Car Care* 148-150 (2d ed. 1985) (same). The court of appeals is mistaken in suggesting that consideration of those factors, which mirror the factors identified in *Daubert*, would necessarily result in reversible error "as a matter of law."

facts of this case. Pet. App. 11b-12b & n.7, 18b, 6c, 4c-7c. The district court properly concluded, based on the factors identified in *Daubert* and other pertinent considerations, that Carlson's methodology is not sufficiently reliable, as to the specific question of whether the tire at issue was defective, to provide the basis for admissible testimony. See Pet. App. 18b, 7c.[9]

As the district court explained, "Carlson's expert opinion that the tire failure was caused by a manufacturing or design defect is founded on his determination that there is a paucity of evidence of over-deflection or other abuse, rather than [on] his ability to pinpoint any affirmative evidence of a defect." Pet. App. 10b. The district court questioned Carlson's method of inferring a defect from the absence of indicia of abuse, and it acted within its discretion in considering the factors cited in *Daubert* to test the reliability of Carlson's methodology. The district court was entitled to consider those factors in this case because they provide a reasonable basis for assessing whether Carlson's methodology is valid.

Carlson propounds a methodology to assess the *cause* of a tire failure.[10] Methodologies for determining the

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[9] The trial court did not consider whether Carlson could have testified as an expert on other matters respecting the tire. Respondents had relied solely on Carlson's testimony to establish that the tire was defective, which is an essential element of their case. If the trial court was correct in determining that Carlson's testimony was inadmissible for that purpose, then it correctly ruled that petitioners were entitled to summary judgment and any other evidentiary issues are moot.

[10] In this respect, Carlson's proffered testimony differs significantly from the court of appeals' analogy to "a beekeeper who claims to have learned through years of observation that his charges always take flight into the wind" (Pet. App. 8a).

cause of physical events are typically subject to validation. Respondents have conceded that, as a practical matter, the factors identified in *Daubert* for validating scientific theories of causation can be applied to Carlson's methodology. See Pet. App. 5c.; Memorandum of Law in Support of Plaintiff's Motion for Reconsideration 14 ("Reconsideration will show that the testimony was admissible because it was based on refutable techniques which were subject to peer review and were widely accepted in the relevant scientific community."). Those factors shed light on the reliability of Carlson's methods, because his methods are more trustworthy if they have been validated through testing, through publication and peer review, through quantitative assessment of their rate of error, and through their acceptance or rejection by those who have a stake in the reliability of the results. The factors that the Court identified in *Daubert* are therefore germane to the court's Rule 702 inquiry. See Pet. App. 4c.

In applying those factors, the district court found that Carlson described his methodology as "subjective," and he could not identify any tests or other procedures to corroborate or refute his results. Pet. App. 12b-13b, 5c. The district court also found that no publications approved or discussed Carlson's techniques for tire failure analysis and that the publications that do discuss tire testing "do not back his techniques." *Id.* at 13b-14b, 5c-6c. The district court determined that the rate of error that would result from using Carlson's methodology is unknown. *Id.* at 14b-15b, 5c n.2. Carlson did

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Determining the cause of the bees' behavior (instinct, training, trial and error, etc.) would require the use of methodology to draw further inferences.

not know whether his previous analyses of failed tires were correct or incorrect, and there was no evidence that anyone had ever tested Carlson's methods in a controlled setting to gauge their accuracy. *Id.* at 14b-15b. Finally, the court concluded that there was no evidence that "the relevant scientific community accepts a visual-inspection, process-of-elimination analysis of tire failure in the manner * * * performed by Carlson." *Id.* at 15b-16b, 6c-7c.

The district court assessed Carlson's testimony against the reliability indicia discussed in *Daubert*, but it also recognized that the reliability inquiry is a "flexible" one and that the "list of criteria propounded in *Daubert* was intended neither to be exhaustive nor to apply in every case." Pet. App. 4c. The court gave respondents the opportunity to show that other factors not discussed in *Daubert* demonstrate the reliability of Carlson's methods. *Id.* at 3c-4c & n.1. The court found, however, that respondents had identified "no countervailing factors operating in favor of admissibility which could outweigh those identified in *Daubert*." *Id.* at 4c. Thus, the district court did not blindly or inaptly apply this Court's "observations" in *Daubert* to this case. Rather, as the court stated, it "found the *Daubert* factors appropriate, analyzed them, and discerned no competing criteria sufficiently strong to outweigh them." *Ibid.*

The district court's assessment properly focused on the reliability of Carlson's methodology. Pet. App. 6c. The court specifically noted that it saw no inherent flaw in the use of a process-of-elimination technique to prove causation, provided that the underlying methodology for eliminating potential causes is reliable. *Id.* at 11b n.7. It concluded, however, that Carlson's methodology is not reliable because it is based on a largely "sub-

jective" process lacking any independent indicia of trustworthiness. *Id.* at 12b-15b, 5c-6c. Carlson's testimony is "simply too unreliable, too speculative, and too attenuated to the scientific knowledge on which it is based to be of material assistance to the trier of fact." *Id.* at 18b.

At bottom, the district court excluded Carlson's testimony because it could find no foundation for Carlson's methodology beyond Carlson's subjective assurances that his method for determining the cause of tire failure is reliable. As this Court made clear in *General Electric*, "nothing in either *Daubert* or the Federal Rules of Evidence requires a district court to admit opinion evidence which is connected to existing data only by the *ipse dixit* of the expert." 118 S. Ct. at 519. A proffered expert, such as Carlson, who relies on experience as a basis for testimony must be able to explain, step-by-step, how that experience reliably leads to the conclusions reached. See *Daubert* v. *Merrell Dow Pharmaceuticals, Inc.*, 43 F.3d at 1319; *In re Paoli R.R. Yard PCB Litigation*, 35 F.3d 717, 745 (3d Cir. 1994), cert. denied, 513 U.S. 1190 (1995).[11]

In sum, the district court "found the methodological foundation of Carlson's testimony to be lacking, and excluded his testimony on that basis, in accordance with Rule 702." *Id.* at 3c. The district court's decision rests on a reasonable exercise of discretion in applying the pertinent legal standards, and the court of appeals

[11] Indeed, it would seem "exactly backwards that experts who purport to rely on general * * * principles and practical experience might escape screening by the district court simply by stating that their conclusions were not reached by any particular method or technique." *Watkins*, 121 F.3d at 991.

consequently erred in overturning the district court's judgment.[12]

CONCLUSION

The judgment of the court of appeals should be reversed.

Respectfully submitted.

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[12] We note that the Standing Committee on Rules and Practice of the Judicial Conference of the United States has recently proposed amendments to Rule 702 that would specify that an expert's testimony would be admissible only if "(1) the testimony is sufficiently based upon reliable facts or data, (2) the testimony is the product of reliable principles and methods, and (3) the witness has applied the principles and methods reliably to the facts of the case." *Preliminary Draft of Proposed Amendments to the Federal Rules of Civil Procedure and Evidence: Request For Comment* 122 (August 1998).